Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Wireless Telecommunications Bureau and	)	WT Docket No. 24-240
Office of Engineering and Technology Seek	)	
Comment on NextNav Petition for Rulemaking	)	RM-11989
	)	

COMMENTS OF RESIDEO TECHNOLOGIES INC.

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Resideo Technologoes Inc. respectfully submits these comments in response to the Federal Communications Commission ("Commission" or "FCC") Public Notice seeking comment on the NextNav Inc. ("NextNav") petition for rulemaking requesting that the Commission initiate a proceeding to reconfigure the 902-928 MHz band ("Lower 900 MHz band") and adopt new rules to enable the deployment of a 5G terrestrial positioning, navigation and timing ("PNT") network.[1] The Commission should not move ahead with a rulemaking based on the Petition.

I. INTRODUCTION AND SUMMARY

Millions of Resideo's devices, which operates within the Lower 900 MHz band, are using a proprietary protocol referred to as RedLINK®. RedLINK® is a wireless protocol for the smart home and Internet of Things ("IoT") industries. This interoperable, radiofrequency ("RF") technology is designed specifically for control, monitoring, and status reading applications in residential and commercial environments. Backwards compatibility is the cornerstone of the

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[1] Petition of NextNav for Rulemaking, WT Docket No. 24-240, at i (filed Apr. 16, 2024) ("Petition"); Letter from Robert Lantz, General Counsel, NextNav Inc., to Marlene H. Dortch, Secretary, FCC, WT Docket No. 24-240 (filed June 7, 2024) ("Petition Supplement"); *see also Wireless Telecommunications Bureau and Office of Engineering and Technology Seek Comment on NextNav Petition for Rulemaking*, Public Notice, DA 24-776 (WTB OET rel. Aug. 6, 2024) ("Notice").

RedLINK® ecosystem, ensuring that all certified devices, regardless of their generation, can seamlessly communicate and function within the same network. Interoperability provides consumers with confidence that their connected devices will work together today and in the future. As a result, RedLINK® protocol has been widespread in wireless control, bringing affordable, reliable, and easy-to-use "smart" products to millions of users in every aspect of daily life for over 20 years.

Resideo directs its comments at the FCC because Resideo is deeply concerned by NextNav's proposal to reconfigure the Lower 900 MHz band in a way that jeopardizes the RedLINK® protocol in the United States. Historically, the FCC has balanced multiple interests in the Lower 900 MHz band, including those of industrial, scientific, and medical ("ISM"), unlicensed, federal radiolocation, and Location and Monitoring Service ("LMS") systems. As a result of such balancing efforts, unlicensed systems are used extensively in the band. Indeed, contrary to NextNav's assertions that the "Lower 900 MHz Band is underutilized,"[2] millions of RedLINK® devices have been deployed and relied on for daily use in-homes and offices throughout the country. Americans also have millions of First Alert Smoke and CO devices that operate in the lower 900MHz band that would be affected causing Life Safety dangers.

The NextNav proposal regarding 5G terrestrial PNT, if adopted, would only be successful if deployed ubiquitously across the country and extremely densely in top urban markets at high power.[3] This would adversely affect the RedLINK® technology by oversaturating the Lower 900 MHz band with RF traffic that would impede communications among millions of currently deployed RedLINK® devices. The result of introducing interference could potentially force Resideo to stop designing devices for the Lower 900 MHz band altogether. Such actions would not only degrade the performance of existing devices but could also render any new devices incompatible with prior generations of devices, undermining the very essence of Resideo's commitment to a stable and reliable connected device experience. NextNav also proposes to remove the requirements in part 90 that protect unlicensed devices and ensure that part 90 devices are properly tested so that they do not cause unacceptable levels of interference to unlicensed devices, like RedLINK® devices. Combined, these changes would damage the RedLINK® ecosystem, including millions of devices on which Americans currently rely.

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[2] Petition at 17.

[3] *See generally* Petition at 21 (seeking to reconfigure the band to provide nationwide broadband); Petition Supplement (proposing rules that would, among other things, substantially increase the allowable power of NextNav's devices).

For these reasons, Resideo respectfully requests that the Commission reject NextNav's petition for a rulemaking and leave in place both the Lower 900 MHz band plan and the important protections for unlicensed devices, like RedLINK® devices, that have fostered the smart home and broader IoT revolutions.

II. REDLINK® DEVICES ARE WIDELY USED IN THE SMART HOME AND IOT REVOLUTIONS AROUND THE COUNTRY

RedLINK® devices, among many others, widely use the Lower 900 MHz band to deliver important, innovative services to businesses and consumers across the country. There are more than 90 certified RedLINK® products on the market today, and many more in development. Resideo urges the FCC to preserve its existing framework for unlicensed devices in the Lower 900 MHz band to maintain this flourishing ecosystem for wireless devices.

A. Proven and Broadly Deployed, RedLINK® Brings Affordable, Reliable, and Easy-to-Use "Smart" Products to Millions of People in Every Aspect of Daily Life

Resideo' s RedLINK® Technology is the robust platform behind a full suite of wireless thermostats, zoning solutions and accessories. With RedLINK®, you can design advanced solutions that solve complex comfort challenges while giving customers complete control in residential and light commercial environments. One of RedLINK®' s many advantages is that it uses a lower frequency (operating between 904 – 926MHz) than common household wireless products such as Wi-Fi and Bluetooth. As a result, RedLINK® is not subject to common interference and congestion, making RedLINK® more reliable for mission-critical tasks and status. Further, backwards compatibility is a fundamental principle of RedLINK® certified products, ensuring that new devices will connect seamlessly with those already deployed.

The technical mitigations required by NexNav's proposed reconfiguration would also directly increase costs for U.S. consumers, many of whom would be forced to upgrade or replace even newly purchased devices. In addition to the cost of new devices, the NextNav proposal would also cause additional costs to consumers that require security system providers, custom integrators, and tech service companies to install and configure such new devices, thus adding an additional layer of expense should the Commission modify the existing operating protocol for connected devices.

III. RECONFIGURING THE LOWER 900 MHZ BAND AS NEXTNAV PROPOSES WOULD CAUSE IRREPARABLE HARM

Reconfiguring the Lower 900 MHz band as NextNav proposes would significantly disrupt the RedLINK® ecosystem, adversely impacting hundreds of businesses and millions of consumers who rely on RedLINK® devices. NextNav's proposals to restructure the Lower 900 MHz band and eliminate protections for unlicensed devices will upset the balance that the FCC has long endeavored to promote in the 900 MHz band and would lead to irreparable harm. Indeed, the current framework has led to extensive use by unlicensed services, fostering development and innovation that has ultimately benefitted consumers.

A. The Commission Should Take Care Not to Upset the Carefully Crafted Balance of Interests in the Band

The NextNav proposal would upend longstanding Commission efforts to balance multiple interests in this band, including ISM, unlicensed, federal radiolocation, and LMS services.[4] The Commission's regime has been successful, and unlicensed systems are used extensively in the band along with part 90 devices and other uses.[5]

NextNav's proposed service must be ubiquitously deployed if it is to be commercially successful, thus ensuring compatibility issues with unlicensed systems that have already been widely deployed. The intent behind the NextNav proposal appears to be centered around attracting mobile broadband providers to utilize the band for delivering mobile broadband services to commercial customers, thereby securing funding for the buildout of NextNav's proposed PNT network.[6] This would make the new broadband/PNT service ubiquitously available anywhere that cell phones are typically used. This means blanketing service areas with high-power signals to provide the desired broadband service. The increased demand for bandwidth under NexNav's proposal would force many of the unlicensed devices that currently use the full 902-928 MHz band today to reduce their spectrum footprint to the limited 11 MHz of non-multilateration LMS spectrum.[7] This increased user density in the remaining spectrum would lead to increased congestion and contention in that portion of the band. NextNav's proposal to eliminate both FCC testing requirements and the prohibition against causing unacceptable interference would even further undermine the numerous systems already built out in the band.

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[4] *See* Notice at 1 (citing *Amendment of Part 90 of the Commission's Rules to Adopt Regulations for Automatic Vehicle Monitoring Systems*, Report and Order, 10 FCC Rcd 4695 (1995)).

[5] *See, e.g.*, *id*. at 4.

[6] Petition at 22 (proposing to "provide terrestrial PNT based on a 5G broadband deployment").

[7] *Id*. at 28 (proposed band plan).

Consumers purchase RedLINK® products with the reasonable expectation that they will continue to function reliably for years. However, if the Lower 900 MHz band is reconfigured, these products will no longer operate as intended or advertised, leaving consumers without any recourse.

B. NextNav's Proposal Would Cause Unacceptable Interference, Severely Harming the RedLINK® Ecosystem

NextNav's proposal to cause "unacceptable interference" to RedLINK® devices would devastate the RedLINK® ecosystem and cause significant disruption to critical applications that cannot be readily remedied.[8] In addition, limiting the use of the Lower 900 MHz band by squeezing unlicensed users would have adverse consequences for currently installed systems.

The removal of testing requirements would give NextNav free rein to saturate the Lower 900 MHz band with high-power traffic, drowning out low-power signals from millions of currently deployed devices.[9] Such a decision would render the vast existing ecosystem of smart home and IoT devices essentially useless. However, even if testing requirements remain in force, deprecation of the Lower 900 MHz band for IoT device connectivity is the inevitable outcome of NextNav's proposal. Their application use case requires dense deployment of high-power signals. Testing would only verify that a functional terrestrial PNT system, expressly designed to work indoors and out, would make it impossible for other IoT devices to communicate effectively in the same frequency band.

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[8] *See* Petition Supplement at A-6, A-11 (seeking removal of the current requirement prohibiting NextNav from causing unacceptable levels of interference to part 15 devices).

[9] Notice at 4 (seeking comment on the effect of the "elimination of the testing requirements of current rule section 90.353(d)" on RedLINK® devices).

The cost of relocation is significant.[10] Given the expansive research, development, labor hours, downtime, and production an ecosystem migration would require, the total cost of relocation is nearly impossible to calculate. Resideo would have to recertify our RedLINK® products, even where development costs have not yet been amortized, resulting in both administrative burden and unnecessary expense. Resideo conservatively estimates such a move as tens of millions of dollars. NextNav proposes a policy that risks crippling innovation in a relatively new and rapidly expanding market.

NextNav has made no effort to mitigate Resideo's concerns.[11] Despite assurances by NextNav to "work with" unlicensed users,[12] Resideo has not been contacted by NextNav to better understand their spectrum usage and requirements.

C. NextNav's Proposal Would in No Way Benefit Resideo Technologies Inc.

RedLINK®, under the current band plan, is a thriving ecosystem with widespread active device development. NextNav's proposed rule changes are not only unnecessary[13] – they are harmful. The cost implications and impacts to Resideo and consumers are numerous.

In summary, NextNav's proposed rule changes are antithetical to the continuous operation of millions of connected devices currently operating in the Lower 900 MHz band. Additional or revised rules would be unlikely to remedy the proposal to such an extent that Resideo and other existing unlicensed users could continue to operate in the reconfigured spectrum.[14]

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[10] *Id.* (seeking comment on the costs for relocation and how long relocation would take).

[11] *Id.* (indicating that NextNav "will work with unlicensed users to understand their spectrum requirements," and seeking comment on the status of outreach with part 15 device users and amateur licensees).

[12] Petition at 30-31.

[13] For example, both NextNav and the Notice identified current work to develop and fund (with government dollars) PNT alternatives. *See* Petition at 7; Notice at 3.

IV. CONCLUSION

For the foregoing reasons, the Commission should reject NextNav's Petition. The FCC's longstanding approach to unlicensed devices in the Lower 900 MHz band has facilitated a vibrant and growing ecosystem in unlicensed devices and specifically in home automation. Undermining this innovation by reconfiguring the band or removing important protections will harm hundreds of businesses, millions of consumers, and the overall industry.

Respectfully submitted,

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September 5, 2024

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[14] *Id*. at 4 (asking commenters whether "NextNav's proposed rule changes adequate," or if additional or revised rules are required).